

*APPLICATION FOR LETTERS PATENT*

for

*SLANT-FACED SUSPENDER CLIP*

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# **SLANT-FACED SUSPENDER CLIP**

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## **CROSS REFERENCES TO RELATED APPLICATIONS**

This application claims the benefit of U.S. Provisional Application No. 60/451,142 filed on February 28, 2003.

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## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

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The present invention relates to suspender clips, and more particularly, the invention relates to a slant-faced suspender clip.

### **2. Description of the Prior Art**

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In recent years, suspenders and braces have become very popular for men's business and casual apparel. In addition, suspenders and braces are used by sportsmen and for gentlemen that need additional help holding up their pants.

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In the past, conventional suspender clips easily came undone off the pants of active men. I invented a new type of clip under U.S. Patent No. 4,901,408 that utilized a pin existing and projecting through the suspender clip in order to secure the cloth. However, my concept of using a pin or needle through the suspender clip in order to pierce the fabric of the pants so that the suspender can easily hold up the pants, would open up when entering a pick-up truck or SUV, even without exertion by the wearer. Even though the pin adds additional holding power to the

suspender clip, customers that used pick-up trucks complained that their clips would open up when entering or exiting their trucks.

Therefore, it is an object of the present invention to provide yet an even more secure suspender clip in addition to the piercing needle concept. It would be of a great advantage to have a new suspender clip design that will apply even more pressure onto the needle so that when a man is doing certain activities, including getting in and out of a vehicle, especially a pick-up truck, his suspender clips do not come open.

## SUMMARY OF THE INVENTION

In accordance with the above-noted advantages and desires of the industry, the present invention provides a slant-faced suspender clip which overcomes many of the aforementioned problems with the prior art because it takes additional force to open the suspender clip, which is especially useful when entering or exiting a vehicle. Furthermore, this specific embodiment has a downwardly angled slant-faced suspender clip which will not as easily get caught on the fabric of the seat of the vehicle, and alleviates the problem of opening the suspender clip.

One specific preferred embodiment has certain features, including a slant-faced actuating cam face plate with a raised face plate hip portion for raising a distal portion of the face plate, such that there is an angle "A" between the face plate and a phantom plane which is created by a plane parallel to that of a back plate of the suspender clip. The face plate extends downwardly at an angle "A" with relation to the back plate, and this angle is created by the raised face plate hip.

The invention is particularly useful for applications of suspender clips which are utilized by our suspender clip customers that enter and exit pick-up trucks, and other tall vehicles

such as SUV's, work trucks, vans, and the like. The downwardly facing slant-faced suspender clip is much less likely to open up than prior art devices.

Although the invention will be described by way of examples hereinbelow for specific embodiments having certain features, it must also be realized that minor modifications that do not require undo experimentation on the part of the practitioner are covered within the scope and breadth of this invention. Additional advantages and other novel features of the present invention will be set forth in the description that follows and in particular will be apparent to those skilled in the art upon examination or may be learned within the practice of the invention. Therefore, the invention is capable of many other different embodiments and its details are capable of modifications of various aspects which will be obvious to those of ordinary skill in the art all without departing from the spirit of the present invention. Accordingly, the rest of the description will be regarded as illustrative rather than restrictive.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

For a further understanding of the nature and advantages of the expected scope and various embodiments of the present invention, reference shall be made to the following detailed description, and when taken in conjunction with the accompanying drawings, in which like parts are given the same reference numerals, and wherein;

FIG. 1 is a perspective view of a pair of slant-faced suspender clips on a brace, made in accordance with the present invention in both open and closed configurations;

FIG. 2 illustrates a side view of the prior art; and

FIG. 3. illustrates the prior art device of FIG. 2 in the open position.

## DETAILED DESCRIPTION OF THE INVENTION

The present invention provides a slant-faced suspender clip that provides a downwardly sloping angled slanted face plate to prevent unwanted opening of the clip. This is an improvement over my earlier invention embodied in U.S. Patent No. 4,901,408, which is incorporated herein in its entirety by reference. The downwardly sloping angle of the present suspender clip discourages the present suspender clip from opening as readily as the old clip. This is especially useful when entering a vehicle, especially tall vehicles such as pick-up trucks. When a typical suspender clip wearer enters his truck, the new angled face plate is much less likely to be caught on the seat back or seat button. This angled face plate also provides greater pressure and more exertion against the pants of the wearer, thereby reducing the incidence of the suspender clip coming undone. It has been discovered that the traditional configuration of a suspender clip would allow for easy opening with a slight upward pressure on the face plate.

However, with the present invention, the force needed to open the clip must be greater as the angled face plate must be raised up past the angle of the face plate, while working against the cam action of the present clip. Not only does the angle of the face plate need to be overcome, but this force is in addition to the same amount of force that opens the conventional clip. Therefore, the present clip requires more force to open than conventional devices. Combining that feature with the fact that the clip is naturally inclined away from the direction of force when a wearer enters a pick up truck, it makes the present invention much less inclined to come apart than the conventional clip.

Looking first to FIG. 1 with relation to the present invention, there is shown a slant-faced suspender clip in accordance with the present invention wherein the suspender clip is generally denoted by the numeral 10. Clip 10 includes the novel feature of an actuating cam member face plate 14 including a raised face plate hip 12 which raises the distal portion of face plate 14 so that there is an angle "A" of from about 1° to about 40° created between the plane of the substantially planar face plate 14 and the plane defined by the plane parallel to that of the back plate 28. In order to compare and contrast the present invention, we look at FIGS. 2 and 3, which is my

own patented prior art device, in which the plane of the face plate on top is essentially parallel with the back plate on the bottom. Note that in the present invention shown in FIG. 1, the actuating cam member face plate 14 is at a downwardly extending angle "A" with relation to the back plate 28, and this angle is created by the raised face plate hip 12 as can be seen in FIG. 1. Face plate hip 12 stands taller than the hip in the prior art, and thereby applies a greater pressure to the top of the suspender clip 13 when it is in the closed position. Suspender clip plate 13 preferably has a hole therein and receives and secures therein a cloth piercing needle 18 having a needle tip 20 which is received below in a needle tip receptor 22 centrally located amongst the cloth securement prongs 24 which raise up from the suspender securement base 26. Suspender clip 10 is secured by a bale 32 to a pair of braces 34 which attaches to suspenders 36 worn by the wearer of the pants.

Still referring to FIG. 1, face plate hip 12 has horizontally extending portions which are received through receptor holes in the face plate hip support flanges 30. Support flanges 30 are integral with the back plate 28 and are pressed into an upwardly extending position so as to receive the opposed face plate hip side projections 12. Face plate hip 12 is an extension of face plate 14, although it is bent from the face plate material.

On the bottom of FIG. 1, the suspender clip is shown in its open configuration, while at the top of FIG. 1 the suspender clip is shown in its closed configuration. As one can see, the cloth securement fixture prongs 24 are angled with respect to one another, although the needle 18 still extends into the needle tip receptor 22. Compare and contrast that to the prior art shown on FIG. 2 and FIG. 3 in which the cloth securement fixture prongs are lined up in a perpendicular fashion to the suspender securement base. As one can see from FIGS. 1-3, the amount of pressure upon the cloth securement prongs 24 and the needle 18 is greater due to the extended angle of the raised hip 12.

By way of complete description, the present invention discloses an apparatus for fastening suspenders to a garment that includes a fastener including a downwardly slanting substantially planar face plate with an actuating cam face plate member having a raised hip depending cam member portion for urging downwardly onto at least one first clamping member. This creates a situation where the first clamping member is clamped into place against at least one second back plate member. The first clamping member preferably includes a needle-like post

attached thereto, but may include any type of post or the like which extends towards the second back plate member in a complementary relation. The second back plate is pivotally attached to the first clamping member by means of opposed side projections which are confined within openings in flanges extending upwardly from the second back plate member. The second member  
5 preferably includes an opening therein for receiving the needle-like post attached to the first member. The back plate member is generally planar and has a plane defined by the back surface of the back plate.

Further in the invention is an actuating cam member including a downwardly  
10 slanting face plate with an integral raised hip depending cam section. The face plate is adjacent to the first member, and the cam member is pivotally attached to the second member by opposed side projections which are confined within the openings of the flanges of the second member. The slanted actuating cam member exerts a sufficient force to maintain the suspender fastener in a closed position in operation.

15 The first and second members have securement fixtures attached thereto on the surfaces facing one another, and these securement fixtures have complementary male and female portions which come together and cooperate when in a closed position. A needle-like post is preferably attached to the first member in a complementary relation to the opening in the second  
20 member, although it may be attached to the second member. The needle-like post extends through the securement fixture attached to the second member, such that when the suspender fastener is in a closed position the post remains attached to the first member, extends through both the complementary plates, and further extends through the garment being supported. The post is received by the opening in the second member, whereby the fabric of the garment being  
25 supported is substantially held fixed.

In another embodiment, the second back plate member is pivotally connected to the first member by the downwardly slanting actuating cam member. This actuating cam is pivotally attached to the first member over said second member, and is movable between a  
30 closed position in which both members contact and urge the second member against the first

member to close the suspender fastener, and an open position in which the suspender fastener is released to permit removal of the suspender fastener from the garment being supported.

The inventor also envisions another embodiment which would include at least two posts attached to either the first or the second member, and it may also include at least two reinforcements spaced apart in order to provide more support over a broader area of the fabric of the garment being supported. The downwardly slanting face plate is preferably slanting at an angle of from about 1° to about 40° with respect to the plane of the second back plate member, although it is most preferably slanting at an angle from about 10° to about 20°.

The foregoing description of a preferred embodiment of the invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Obvious modifications or variations are possible in light of the above teachings with regards to the specific embodiments. The embodiment was chosen and described in order to best illustrate the principles of the invention and its practical applications to thereby enable one of ordinary skill in the art to best utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the claims which are appended hereto.